## REMARKS

Claims 1-27 are all the claims pending in the application. With this amendment, Applicants modify claims 1-10 and 15-17 and add claims 21-27. Claims 11-14 and 18-20 have been withdrawn from consideration. However, Applicants request that claims 12 and 14 also be considered for the reasons given below.

### I. Formalities

Applicants thank the Examiner for acknowledging the Election of Species filed on August 24, 2004, and for confirming Applicants' election of Species III from Level I and Sub-Species I from Level II.

However, during discussions with the Examiner on April 19, 2004, the Examiner indicated that claims 12 and 14 would also be examined based on their dependency on claim 4 (see also Response to Election of Species filed on August 24, 2004). Accordingly, Applicants respectfully request that claims 12 and 14 be examined.

Applicants also thank the Examiner for acknowledging the claim for foreign priority and for confirming receipt of the certified copy of the priority document.

Applicants further thank the Examiner for initialing and returning copies of the forms PTO-1449 submitted with the Information Disclosure Statements filed on June 15, 2001, and September 8, 2003.

### II. Objections to the Drawings

The Examiner has objected to the drawings under 37 CFR 1.83(a). Specifically, the Examiner contends that the measuring and estimating of noise level N, as set forth in claim 1, is

not illustrated. The Examiner also contends that the feature of separately controlling the reduction of echo signals and the reduction of noise signals, as set forth in claim 17, is not illustrated.

Applicants are submitting two new drawing sheets including Fig. 2 and 3. Fig. 2 illustrates a functional overview of echo correction consistent with the present invention. Fig. 3 illustrates a functional overview of echo and noise correction consistent with the present invention.

Applicants submit that these figures illustrate the above features and obviate the objection. Applicants submit that no new matter has been added. The subject matter of Figs. 2 and 3 is supported at least at page 12, line 26 to page 13, line 7, of the Specification and original claims 1 and 17.

## III. Objections to the Specification

The Examiner has objected to the layout of the specification under 37 CFR 1.77(b). The Examiner has also objected to the Abstract of the Disclosure because it contains more than 150 words.

Applicants submits that the modifications to the Specification and Abstract obviate the objections. Applicants submit that no new matter has been added. The addition subject matter in the Specification is supported at least at page 12, line 26 to page 13, line 7, of the Specification and original claims 1 and 17.

## IV. Claim Rejections - 35 USC § 112

The Examiner has rejected claims 1, 3, 4, 6-10 and 16 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Applicants submit that the modifications to the claims obviate the rejection.

## V. Claim Rejections - 35 USC § 102

The Examiner has rejected claims 1, 5, 15 and 17 under 35 U.S.C. § 102(b) as being anticipated by Walker *et al.* (US 5,570.423) ["Walker"]. For at least the following reasons, Applicants traverse the rejection.

Claim 1, as amended, recites a method for reducing echo signals using a "function h(N) [that] increases as N [noise] increases." The Examiner contends that step width α in Walker corresponds to the claimed function h(N). Office Action at page 8. With respect to the claimed increase in function h(N) as the noise increases, the Examiner does not specifically comment on this feature, but, in the §103 rejection of claim 2, which originally recited this feature, the Examiner contends that it would have been obvious for one skilled in the art to accommodate and design a specific performance range with the echo canceller of Walker. Office Action at page 11.

Walker discloses a system in which an echo canceller comprises a step width α that is a measure of the change of filter coefficients after a new calculation (Abstract, col. 5, lines 18-20). In order to reduce improper adjustments to the echo canceller, the step width α is controlled based on ambient condition of the signal source and signal sink (col. 2, lines 52-57 and col. 7,

lines 33-35). Walker also discloses that the step width α becomes smaller as the noise increases (col. 8, lines 57-60).

Accordingly, even if, for the sake of argument alone, the step width α of Walker corresponded to the claimed function h(N), Walker does not disclose or suggest the claimed relationship between the claimed function and noise since the step width α of Walker decreases as the noise increases. Claim 1 of the present invention recite a "function h(N) [that] increases as N [noise] increases."

Applicants also submit that the claimed features would not have been obvious since modifying the step width α to increase as the noise increases would be to change the principle of operation of the system in Walker, and such a design change could even render the system inoperable. Therefore, Applicants submit that the Examiner has not established a *prima facie* case of obviousness with respect to the claimed relationship between he claimed function and noise. See MPEP at 2100-132 (Proposed modification cannot change the principle of operation.).

Applicants submit that claims 5 and 15 are patentable at least by virtue of their dependency on claim 1. In addition, withdrawn claims 11, 13 and 18-20 are allowable at least for these reasons given by virtue of their dependency on claim 1.

Claim 17 recites a method for reducing echo signals wherein controlling the "suppression or reduction of the noise signals and the reduction of echo signals" is done separately. The Examiner contends that Fig. 8, col. 1, lines 34-39 and col. 12, lines 22-28 of Walker, disclose this feature. Applicants disagree.

These sections merely describe the title of a book by T. Huhn and H. J. Jentschel (see col. 1, lines 35-36), and the use of local noise as an adjustment to the step width α that determines how much the coefficients of the echo canceller should change (col. 12, lines 22-28). The applicable part of Fig. 8B illustrates a noise level estimator that is described in col. 8, lines 32-50 and Fig. 6. This section clearly discloses that the local noise level is used to adjust step width α. At best, these sections may disclose that noise is measured for use in echo reduction, however, there is no disclosure or suggestion that the system in Walker suppresses or reduces noise separately from the reduction of the echo signals, as set forth in claim 17. In fact, there is no disclosure or suggestion that the system in Walker even reduces the noise.

## VI. Claim Rejections - 35 USC § 103

The Examiner has rejected claims 4, 6-8 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Walker, as applied to claims 1 and 5 above, and further in view of Shanmugam ("Digital and Analog Communication Systems" (Book), 1979, John Wiley & Sons, PP. 175-181) ["Shanmugam"]. For at least the following reasons, Applicants traverse the rejection.

Claim 4 recites a method of reducing echo signals "wherein the predefined function h(N) is a function k(S/N), which depends on a signal-to-noise ratio, S/N, of a power value of a signal level S of the wanted signals to be transmitted and a power value of the noise level N, or wherein the predefined function h(N) is a function k'(N/S), which depends on the reciprocal, N/S, of the signal to noise ratio, or which depends on N/(N+S)."

The Examiner concedes that Walker does not disclose this feature but applies Shanmugam to allegedly cure the deficiency. The Examiner contends that claim 4 basically implies taking into consideration a telecommunication channel capacity and that the famous Shannon-Hartley theorem, as described in Shanmugam, defines a telecommunication channel capacity as a function of N/S. The Examiner contends that one skilled in the art would have been motivated to combine the references in order to take into account channel capacity for echo cancellation and noise reduction.

Even if, for the sake of argument alone, a function of N/S represented channel capacity, Applicants submit that mere "identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000).

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP at 2100-131, See also *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) ("While [an] apparatus may be capable of being modified ... [as] claimed, there must be a suggestion or motivation in the reference to do so.").

Here, the Examiner has not provided support in the prior art for modifying the system in Walker. Walker does not disclose or suggest that the step width $\alpha$ depend on a ratio (S/N), (N/S) or (N/(N+S)) as set forth in claim 4. Shanmugam does not disclose or suggest that the Shannon-Hartley theorem be used in echo cancellers. Accordingly, Applicants submit that the Examiner has not made a *prima facie* case of obviousness since his proffered reason for combining the

references is not supported in the prior art. In fact, the Examiner improperly uses Applicants' claim 4 as the basis for providing the suggestion and motivation to combine the references.

Applicants submit that claim 10 is patentable at least by virtue of its dependency on claim 4.

Claim 6 recites a method of reducing echo signals and reducing noise signals. Because Walker does not disclose or suggest noise reduction for at least the reasons given above with respect to claim 17, and because Shanmugam does not cure this deficiency, Applicants submit that the Examiner has failed to make a *prima facie* case of obviousness for claim 6.

Applicants submit that claims 7 and 8 are patentable at least by virtue of their dependency on claim 6.

The Examiner has rejected claims 2, 3 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Walker as applied to claim 1 above. For at least the following reason, Applicants traverse the rejection.

Applicants submit that claims 2, 3 and 9 are patentable at least by virtue of their dependency on claim 1. The reasons supporting the patentability of claim 1, as presented above, are valid with equal force in the context of the rejection under 35 U.S.C. § 103(a) of claims 2, 3 and 9.

## VII. New Claims

With this amendment, Applicants add claims 21-27. Applicants submit that these claims are patentable at least by virtue of their respective dependencies.

## VIII. Rejoinder

Because the independent claims are patentable for at least the reasons given above, Applicants respectfully request the rejoinder of all the non-elected claims based on their respective dependencies.

## IX. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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## AMENDMENTS TO THE DRAWINGS

Applicants are submitting one amended drawing sheet including Fig. 1 and two new drawing sheets including Figs. 2 and 3.

Fig. 1 has been amended to include the label "Fig. 1."

Fig. 2 illustrates a functional overview of echo correction consistent with the present invention.

Fig. 3 illustrates a functional overview of echo and noise correction consistent with the present invention.

Applicants submit that no new matter has been added. The subject matter of Figs. 2 and 3 is supported at least at page 12, line 26 to page 13, line 7, of the Specification and original claims 1 and 17.

Attachment: One Amended Sheet and Two New Sheet(s)